

Chapter Four: Systems Issues and Environmental Barriers to Overweight and Obesity Control

Although overweight and obesity are mainly a result of individual behaviors and choices, the environments in which we live affect our behaviors and choices. The school environment, the workplace environment, the neighborhood environment, and meal consumption away from home are all environments that can influence our nutrition and physical activity choices.

the school environment

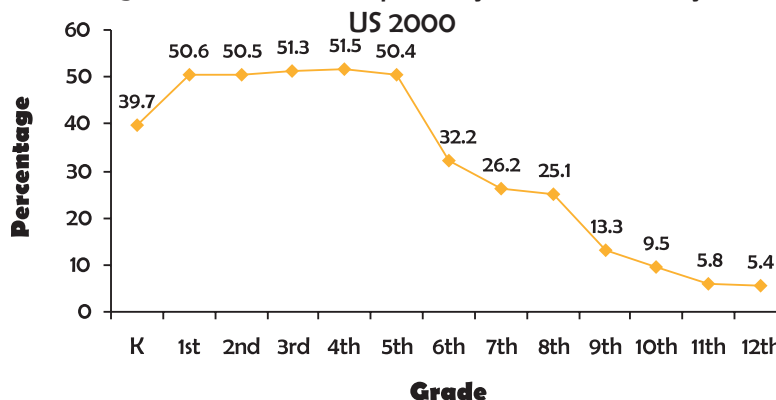
Children spend a large portion of time in school. Therefore, their food choices are influenced by the eating environment created within schools. Over the past decade, the most striking school food environment-related trends were decreased student participation in the National School Meals Program and increased availability of less nutritious “competitive foods”, those available in addition to United States Department of Agriculture (USDA)-provided school meals.⁸² Studies indicate that while school meal programs contribute to better nutrition and healthier eating behaviors for the participants, the types of competitive foods sold in schools undermine the nutritional integrity of the school meal programs and discourage

participation.^{60,83,84} Generally, children replace school meals with less nutritious competitive foods, thereby increasing the risk that their daily dietary intake will be inadequate. Also, if children use less nutritious competitive foods to supplement their school meals then unhealthy weight gain can result.⁸⁴

Nationally only about half of elementary schools and less than 15 percent of high schools require students to participate in physical education. (See Figure 26.) Only one-quarter of high school students participate in daily physical education, and only 19 percent of high school students are active at least 20 minutes per day during physical education class.⁸⁵ There are many benefits to physical

education, such as development of motor skills needed for enjoyable participation in physical activities, promotion of physical fitness, increased energy expenditure, and promotion of a positive attitude toward an active lifestyle.⁸⁵

Figure 26. Percentage of Schools that Require Physical Education by Grade, US 2000



Source: Journal of School Health, Volume 71, Number 7, September 2001.

Competitive Foods and Vending Machines

A Department of Agriculture (USDA) report to Congress found that competitive foods have lower nutritional quality than school meals. Competitive foods may add to over-consumption of food energy, dietary fat, saturated fat, added sugars, and sodium, and under-consumption of calcium, fiber, fruits and vegetables, and whole grains.⁶⁰ Competitive foods available to school children include: food purchased from off-campus establishments, a la carte sales, vending machines, school stores, canteens and snack bars, fundraising sales, food at school parties, and treats given by teachers to children. These foods are not required to meet the nutritional standards of reimbursable school meals, and studies suggest that they often do not.

USDA may not ban the sale of approved competing food items when profits go to the school or to school-approved student organizations, (2) the law limits the regulation of competitive food only to the time and place that government meal programs are being served, and (3) it is unclear if the USDA has any power over competing food that is donated rather than sold. In addition to the federal law, state agencies and school food authorities are allowed to impose additional restrictions on the sale of all food at any time throughout the school and on the disposition of income from the sale of competitive foods. As of 2001, 20 states have imposed additional restrictions on the sale of competitive foods; Utah has not.⁸⁶

A Utah survey conducted in the Fall of 2002 to evaluate the number of vending

machines in schools, showed that vending machines were found in most schools. (See Figure 27.) On average, the number of vending machines was highest for senior high schools (average of 12 vending machines per school) and lowest for elementary schools (average of two vending machines per school).

In some cases, competitive foods are believed to be important to the finances of the school or even the school food service itself. Schools have negotiated

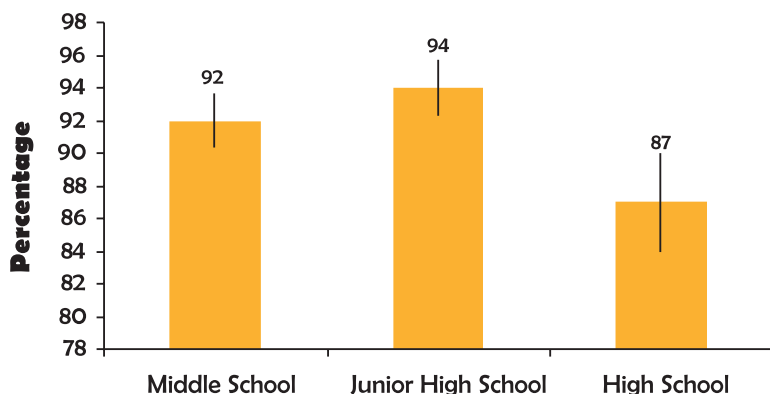
Maine does not allow competitive food sales on campus at any time. North Carolina requires that competitive foods must contribute to the nutritional well-being of the child and aid in establishing good food habits.⁸⁶

The Child Nutrition Act of 1966 gave the USDA the power to regulate competitive foods. As the law currently stands, (1) the

number of vending machines was highest for senior high schools (average of 12 vending machines per school) and lowest

Figure 27.

Percentage of Schools with Vending Machines, Utah 2002



Source: Utah Department of Health, Bureau of Health Promotion, Heart Disease and Stroke Prevention Program. (2003). Healthy Kids Ready to Learn: Healthy Choices Vending Machine Inventory, Conducted statewide Fall 2002.

contracts with soft drink companies in which schools provide exclusive rights to vending machine sales and event sales, and in some cases guarantee minimum sales.⁶²

advertising campaigns. Many students already come to school with preferences for sweetened beverages, salty snacks, and fast foods, and would rather socialize around vending machines.⁶⁰ In addition,

Lowering prices on lower-fat snacks and increasing prices of higher-fat snacks in Minnesota school vending machines promoted healthier choices without significantly affecting profits.⁸⁹

The 2002 Utah vending machine survey confirmed that school vending machines are filled with less nutritious items. For every healthy choice, there were 14 unhealthy choices; a slightly higher ratio was observed in rural (1:14.2) compared to urban (1:11.7) areas. Snacks were categorized as “healthy” based on total caloric value, amount of saturated fat, sugar, protein, fiber, and nutrient content (calcium, iron, and vitamins A and C). For every milk choice available to students, there were 45 soda choices; there were more milk choices in rural (1:39) areas than in urban (1:53) areas.⁸⁷ A healthy food vending pilot project conducted in Utah showed students who had access to healthy food in school vending machines made healthy choices. These data suggest vending machines containing healthy food could be profitable.⁸⁸

Availability of less nutritious competitive foods sends a mixed message to students. When children are taught at home and in the classroom about good nutrition but are surrounded by vending machines, snack bars, and school stores offering low nutrient-dense options, they may perceive that proper nutrition is not important to their health or education. School lunch programs have difficulty competing with the foods that are marketed to children through sophisticated multi-million dollar

vending machines in schools may result in stigmatization of lower income children since only students with cash can purchase food from vending machines. As a result, children may perceive school meals as primarily intended for poor children.⁶⁰

Time reserved for lunch periods has been reduced due to academic performance pressures that require more classroom time. In response, students choose quicker, less nutritious foods from vending machines or snack bars. As the number of students increase and budgets decrease, priority is given to classroom space at the expense of lunchrooms.⁶⁰

Physical Education in Schools

Physical inactivity is a risk factor for overweight and obesity in children and adolescents. National data suggest that physical activity decreases as children become older, and that girls are less active than boys.⁹⁰ The proportion of



adolescents who participate in daily school physical education has been determined to be a strong predictor of physical activity level.⁹¹

Nationally, from 1991-2003 there was no change in the percentage of students enrolled in physical education classes between grades nine and twelve. The percentage is similar among boys and girls in every grade.⁹¹

In Utah, the proportion of adolescents who participate in daily school physical education decreased from 37 percent in 1999 to 26 percent in 2003. Also, the percentage of Utah public high school students who were insufficiently physically active increased from 20 percent in 1999 to 25 percent in 2003.⁹⁰ Although there are no Utah data identifying risk by race or ethnicity, national data suggest that whites are typically more active than African-Americans or Hispanic/Latinos.⁹⁰

Results from a 2004 survey of Utah high schools, middle schools, and junior/senior combined schools shows that all schools required some physical education for students in any of grades 6-12. Most schools (80 percent) required that the

students take two or three physical education courses during that time period. Although all of the schools required sixth graders to take a physical education class, only 50 percent of the high schools and junior/senior combined schools required twelfth graders to take a physical education class.⁹²

Physical inactivity is an independent risk factor for several chronic diseases in adults, and low physical activity has been identified as contributing to the rising prevalence of obesity and type 2 diabetes in young people.²⁵ The increasing rate of physical inactivity in our society, and the contributions of inactivity to obesity and chronic disease, makes it a major public health problem in children, adolescents, and adults. The precursors of chronic disease are seen frequently in American youth. These include increased elevations in blood cholesterol and blood pressure, excessive body fatness, and insulin resistance. These factors, all affected by physical activity, lead to chronic disease and premature death in adults.

the workplace environment

Since the average American adult spends approximately 40 hours per week at work, it is important to address physical activity in the workplace.

By 1999, 95 percent of national worksites with 50 or more employees offered nutrition, weight management classes, or counseling at the worksite or through their health plans.⁷ A study of worksite health promotion programs found that specific interventions at the worksite resulted in

employees choosing to reduce the amount of fat calories they consumed and eating more fruits, vegetables, and dietary fiber.⁹³ Worksite health promotion programs may reduce health care costs, including employer costs for insurance programs, disability benefits, and medical expenses.

Regular physical activity depends in part on the availability and proximity of community facilities and environments conducive to physical activity. Studies



of adult participation in physical activity have showed that facility use generally decreases as the distance from a person's residence increases.⁹⁴ People are unlikely to use community resources located more than a few miles away by car or more than a few minutes away by biking or walking.^{95,96}

Worksite physical activity and fitness programs provide a way to reach large numbers of adults and have at least short-term effectiveness in increasing the physical activity and fitness of program participants.⁹⁷ Evidence that worksite programs are cost-effective is growing. Such programs may reduce employer costs for insurance premiums, disability benefits, and medical expenses. Additional benefits for employers include increased productivity, reduced absenteeism, reduced employee turnover, improved morale, enhanced company image, and enhanced recruitment.⁹⁶



The Utah Worksite Health Promotion Survey conducted in 2001 included responses from 501 businesses from all over the state.⁹⁸ The survey included questions on nine criteria which were based on best practices. The criteria were: senior management support, program alignment with strategic business objectives, need-based programming, menu-driven programming, maximizing participation levels, annual health risk appraisal process, use of appropriate incentives, creation of supportive cultures, and creation of supportive environments.



The survey showed that worksites with wellness committees (funded or not) were more likely to have healthy worksite opportunities than those without wellness committees, and large companies (100 or more employees) were 14 percent more likely to have a wellness committee compared to medium-sized companies (50 to 99 employees). Less than half of the companies with wellness committees had a budget for the committee, and about half of these companies had a designated person responsible for the committee.

Both large and medium companies used internal e-mail and/or intranet to distribute health messages. The most common class offered was stress

management, although nutrition/weight management, physical fitness, and tobacco cessation classes were also offered.

Large companies were twice as likely to offer evaluation screenings for blood pressure, cholesterol, physical fitness, body fat/weight, blood sugar, periodic health exams, and nutrition compared

to medium companies. Interestingly, medium-sized companies were more likely to have a policy for healthy food options compared to large companies, and 86 percent of companies had an Employee Assistance Program (EAP). (A company worksite evaluation form is found in Appendix E.)

meal consumption away from home

Restaurants, Fast Foods, Convenience Foods, and Portion Sizes

Recent trends in food consumption show an increase in portion sizes,⁹⁹ an increase in foods eaten away from home, also in larger portions,¹⁰⁰ and an increase in between-meal snacking.¹⁰¹

Several different environmental barriers and lifestyle choices may preclude eating nutritious foods in moderate amounts and contribute to obesity.

More Americans are eating meals and snacks away from home. Between 1977-78 and 1995, consumption of food prepared away from home increased from 16 percent to 27 percent of total calories. (See Figure 21, Chapter 3.) If this trend continues, only about two of three meals and snacks will be eaten at home by the year 2010.

Several factors may put consumers at risk for consuming more food products in larger quantities away from the home. Large portions encourage people to eat

more and stimulate sales of products to adults and children. Food service establishments actively promote larger portions through the use of larger plates, larger baking pans, and larger containers for soda and fries.¹⁰² Variety and palatability also stimulate intake, and restaurant eating offers individuals an opportunity to easily access a wide variety of highly palatable foods. Because large portions have become typical, consumers have increased difficulty recognizing appropriate portion sizes for their weight and activity levels.¹⁰²



Certain groups may be more at risk as well. With more women working outside the home and the increasing affordability of food prepared outside the home more

families are at increased risk for obesity.¹⁰¹ Even food that is prepared in the home is increasingly likely to contribute to obesity because more and more Americans rely on prepared or convenience foods, that are extremely high in calories, quick to prepare, and inexpensive. Substantial evidence supports an



association between larger food portions and rising obesity rates. Portion sizes of foods and beverages commonly consumed in the US have increased, including white bread products, cakes, alcoholic beverages, hamburgers, steaks, soda, french fries, pasta, and pizza.¹⁰² Between 1989-91 and 1994-96, portion sizes increased significantly for commonly eaten foods such as grains and cereals,

soft drinks, coffee, tea, fruit juice, and beer.¹⁰³ Inconsistencies between two sets of standard serving sizes, the food guide pyramid and food label servings, may create confusion about correct serving sizes. In addition, prevention guidelines recommend “sensible” portion sizes but often do not define what those are. Most marketplace portions exceed standard serving sizes by at least two-fold and sometimes eight-fold.¹⁰² Additionally, fast food chain portions are often two to five times larger than the size of the original item when it was first sold.¹⁰² (See Figure 28.) It is important to note that other researchers have found that most of the increase in calories is from calories consumed during snacks, and not from larger portion sizes.¹⁰³

The current eating environment promotes consumption of larger portions, in many cases without public awareness. In addition to containing more fat, calories, and sodium, “away” food contains less fiber and essential vitamins and minerals than food prepared in the home and may contribute to both obesity and malnutrition.¹⁰⁰ The increasing consumption of “away” food may also contribute to the phenomenon of fewer families eating together and children failing to view eating as a pleasurable social activity. Dual- and/or low income families who lack the time required for food preparation are likely to rely on “away” and convenience foods.

Figure 28.

Examples of Increased Portion Sizes

Item	Original Size	Current Size (2002)
Hershey's Chocolate Bar	0.6 oz (in 1908)	1.6 - 8.0 oz
Burger King Hamburger Sandwich	3.9 oz (in 1954)	4.4-12.6 oz
McDonald's Soda	7 fl oz (in 1955)	12-42 fl oz

Source: Check Your Health. Portion Distortion in America. Retrieved on May 23, 2005 from http://www.checkyourhealth.org/nutrition/portiondistortion/pd_facts.htm.

the neighborhood environment

Lack of Active Community Environments (ACEs)

Modern lifestyles contribute greatly to physical inactivity.

Workplaces are increasingly automated, many jobs are sedentary, and cars are used for short trips. The number of trips the average American adult takes on foot each year decreased 42 percent between 1975

that are uncomfortable and unsafe, and discourage physical activity among non-motorists.

Research shows that urban design and the physical environment can have a great influence, both positive and negative, on health behaviors. Studies show that elements of urban sprawl, including low-density residential developments,

separation of land use, and poor access from one place to another by road, are associated with increased body weight. People living in sprawling communities weighed more than those living in more compact communities.¹⁰⁵ People living in compact communities were more likely to walk in their leisure time than those in sprawling communities. In addition, walking for utilitarian purposes, to reach a destination

such as school, work, or shopping, is more likely in compact, mixed-use



and 1995.¹⁰⁴ Among American children, walking trips decreased 37 percent. Today only 10 percent of public school students walk to school compared to the majority of students a generation ago.¹⁰⁴ The most common means of transportation to school is by car.

Individuals who live in both rural and urban areas are at risk for physical inactivity because of community design. Most communities are designed to accommodate cars, and lack walkways and bikeways. Even where walkways and bikeways exist, wide roads and intersections, large parking lots, and drive-through businesses create environments





communities.¹⁰⁵ A study showed that people who had poor access to sidewalks, including sidewalks on only one side of the street, were more likely to be overweight. In addition, those with poor access to recreational facilities, regardless of socioeconomic status, were more likely to be obese.¹⁰⁶

The majority of Utah communities do not have environments and policies that support physical activity. In a recent survey of 236 Utah cities, only 34 percent of the cities reported having multi-use paths. Of the 139 total miles of multi-use paths that exist throughout the state, 68 miles (49 percent) are found in only five cities. Furthermore, less than one percent of paved streets have designated bike lanes, and only 11 cities reported having diagrams or directional signs describing the available bike lanes. Only three cities did not report the presence of neighborhood, school, and community parks, and park and connector trails.¹⁰⁷

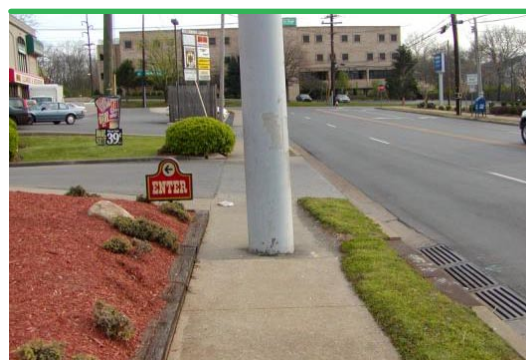
The majority of cities (66 percent) reported having policies requiring the building of paved sidewalks in new communities, but only 33 percent of cities required them in re-developed communities, and only 45 percent of cities required them in multi-use communities. All cities with populations of 100,000 or more reported having such policies, and several communities reported the

intention to institute policies within the next year.¹⁰⁷

The percentage of communities requiring bike lanes is dramatically lower than the numbers requiring paved sidewalks. Only five percent of cities containing at least 10,000 people and seven percent of cities containing 1,000-9,999 people report bike lane ordinances. Only 14 cities have policies requiring bike lanes in new, re-developed, or mixed-use communities, and less than two percent of Utah communities required shared-use paths in new communities.¹⁰⁷

The Transportation Equity Act for the 21st Century (TEA-21), requires every local government to include pedestrian and biking facilities in their transportation plan. Yet, in Utah, only 67 percent of class 1 cities (population 100,000+); 20 percent of class 2 (10,000-99,999); 43 percent of class 3 (1,000-9,999); and 42 percent of class 4 (100-999) cities report having pedestrian and biking facilities in their plans. Eleven cities report an intention to include such policies within the next year, and 11 cities report not having Master Plans.¹⁰⁷

Facilities and environments that support physical activity are of great importance to Utahns. More than 94 percent of Utah trail users and 65.9 percent of non-trail users reported that quality trails were



important. Furthermore, more than 65 percent of trail users and 48 percent of non-trail users felt quality trails result in economic benefit. Ninety percent of Utahns who used a trail in the past year agreed that having trails in or near their community allowed them to be physically active and led to a healthy lifestyle.

Moreover, 66.7 percent of non-trail users also agreed with that statement.¹⁰⁷ Considering these attitudes toward ACEs, and the health status of Utahns today, it is imperative that local governments find ways and means to make quality trails available in every city and town in the state.